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EXAMINER	
SMITH, JOSHUA Y	

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/508,750	MOORE, ANDREW	
	Examiner	Art Unit	
	Joshua Smith	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The preliminary amendment filed on 9/21/2004 has been entered.

- **Claims 9-16 are pending.**
- **Claims 1-8 have been canceled.**
- **Claims 9-16 stand rejected.**

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to Claims 10 and 15, the phrase "and/or" renders the claims indefinite because "and" indicates **all** limitations among multiple limitations are required, whereas "or" indicates **a single** limitation among multiple limitations is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9, 10, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Giroux et al. (Patent No.: US 6,317,416 B1), hereafter referred to as Giroux.

In regards to Claims 9 and 16, Giroux teaches in column 3, lines 12-13, a connection admission controller computes the minimum bandwidth required for each service class (providing a communications network resource to a plurality of classes of use of a network, a different level of service being associated with each class of use).

Giroux also teaches in column 2, lines 11-24, a fair queue servicing arrangement in a multi-service class packet switched network, comprising a weighted fair queuing controller, and buffer means for receiving incoming packets in queues, characterized in that further comprises means for monitoring buffer usage for each queue, means for determining the bandwidth requirements of each class of service, and a service weights manager for dynamically modifying the weights of said weighted fair queuing controller means in response to said buffer usage and bandwidth requirements (a demand estimator for estimating a demand for each class, and a dynamic resource allocator for allocating to each class a proportion of a network resource, a proportion allocated being dependent on an estimated demand for each class, and an allocation optimizing use of an available network resource while ensuring a level of service of each class is observed).

Giroux also teaches in column 2, lines 49-52, a service weight manager that dynamically modifies weights to be used by a WFQ Scheduler (a communications

network element for providing to each class a proportion of network resource allocated to it).

In regards to Claim 10, Giroux teaches in column 1, line 62 to column 2, line 3, a method of fair queue servicing at a queuing point in a multi-service class packet switched network, wherein incoming packets are received in buffers and outgoing packets are scheduled by a weighted fair queue scheduler characterized in that real-time information of buffer usage along with the minimum bandwidth requirement is used to dynamically modify the weights of the weighted fair queue scheduler (a network resources comprises bandwidth of a communications channel fed by a network element and buffer depth in a network element).

In regards to Claim 14, Giroux teaches in column 3, lines 30-33, an Internet-like best effort service that compensates for low unitization of other service classes (a best-effort service is provided as a class).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giroux et al. (Patent No.: US 6,317,416 B1) in view of Suni (Patent No.: US 7,149,185 B1), hereafter referred to as Giroux and Suni, respectively.

In regards to Claim 11, as discussed in the rejection of Claim 1, Giroux teaches a demand estimator. Giroux fails to teach using a traffic envelope scheme in which a characterization of traffic flow is conducted over a specified particular period. Suni teaches these limitations.

In the same field of endeavor, Suni teaches in column 9, lines 60-64, a set of peak rates over numerous intervals of different lengths during some measurement window T, and the resulting maximal rate envelope describes the flow's maximal rate as a function of interval length (using a traffic envelope scheme in which a characterization of traffic flow is conducted over a specified particular period). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Suni with the invention of Giroux since Suni provides a detailed method of

using traffic envelopes in measuring data traffic for use in scheduling and queuing data, which can be adopted into the system of Grioux to provide efficient traffic scheduling.

In regards to Claim 12, as discussed in the rejection of Claim 1, Giroux teaches bandwidth requirements. Giroux fails to teach a mean and a variance of consecutive traffic envelopes is determined to estimate effective bandwidth. Suni further teaches these limitations.

Suni further teaches in column 9, lines 60-64, a set of peak rates over numerous intervals of different lengths during some measurement window T, and the resulting maximal rate envelope describes the flow's maximal rate as a function of interval length (consecutive traffic envelopes is determined to estimate effective bandwidth requirements).

Suni also teaches in column 11, lines 27-30, a maximal rate envelope is estimated by determining estimates of mean and variance (a mean and a variance of consecutive traffic envelopes). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Suni with the invention of Giroux since Suni provides a detailed method of using traffic envelopes in measuring data traffic for use in scheduling and queuing data, which can be adopted into the system of Giroux to provide efficient traffic scheduling.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Giroux in view of Suni, and further in view of Knightly et al. (Patent No.: US 6,801,501 B1) and

Boorstyn et al. ("Statistical Service Assurances for Traffic Scheduling Algorithms", December 2000, IEEE, IEEE Journal on Selected Areas in Communications, Vol. 18, No. 12, page 2656), hereafter referred to as Knightly and Boorstyn, respectively.

In regards to Claim 13, as discussed in the rejection of Claim 1, Giroux teaches demand estimator, traffic bandwidth, and traffic flow. Giroux fails to teach a formula involving a first effective bandwidth and a second effective bandwidth, and traffic envelope. As discussed in the rejection of Claim 12, Suni teaches traffic envelopes. Suni further teaches worst case effective bandwidth estimate. Knightly and Boorstyn teach formulas.

Suni further teaches in column 15, lines 4-9, a worst possible case of a buffer need involving sources sending bursts of data (a worst case traffic flow). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Suni with the invention of Giroux since Suni provides a detailed method of using traffic envelopes in measuring data traffic for use in scheduling and queuing data, which can be adopted into the system of Giroux to provide efficient traffic scheduling.

In the same field of endeavor, Knightly teaches in column 4, lines 46-56, $\max_{k=1,2,\ldots,T-1}\left\{k\tau\left(\overline{R_k}+\alpha\sigma_k+\tau_k-C\right)\right\}$. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Knightly with the invention of Giroux since Knightly provides a method involving a formula that can aid in scheduling data for limited resources and can be adopted into the system of Giroux to enhance its scheduling system for efficient scheduling.

Knightly fails to teach dividing the equation by $k\tau - \frac{q}{C}$. However, in the same filed of endeavor, Boorstyn teaches in page 2656, upper half of first column, $\frac{x}{\rho\tau}\frac{A^*(\tau)-\rho\tau}{A^*(\tau)-x}$. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Boorstyn with the invention of Knightly since Boorstyn provides many solutions for scheduling services and can be adopted into the system of Knightly to aid in ensuring quality of service.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Giroux in view of Knightly.

In regards to Claim 15, as discussed in the rejection of Claim 1, Giroux teaches network data traffic. Giroux fails to teach voice and video data is transferred across a network. Knightly teaches these limitations.

Knightly teaches in column 1, lines 15-23, and in column 11, lines 60-63, network traffic includes video and audio (voice and video data is transferred across a network). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Knightly with the invention of Giroux since Knightly provides a method involving a formula that can aid in scheduling data for limited resources and can be adopted into the system of Giroux to enhance its scheduling system for efficient scheduling.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Smith whose telephone number is 571-270-1826. The examiner can normally be reached on Monday through Friday, 9:30 AM to 7:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua Smith
12/31/2007

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